



## **The effect of NaCl and low nutrient availability on initial adhesion of *Listeria monocytogenes* to solid surfaces under liquid flow**

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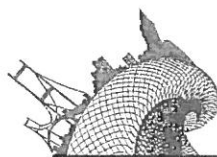
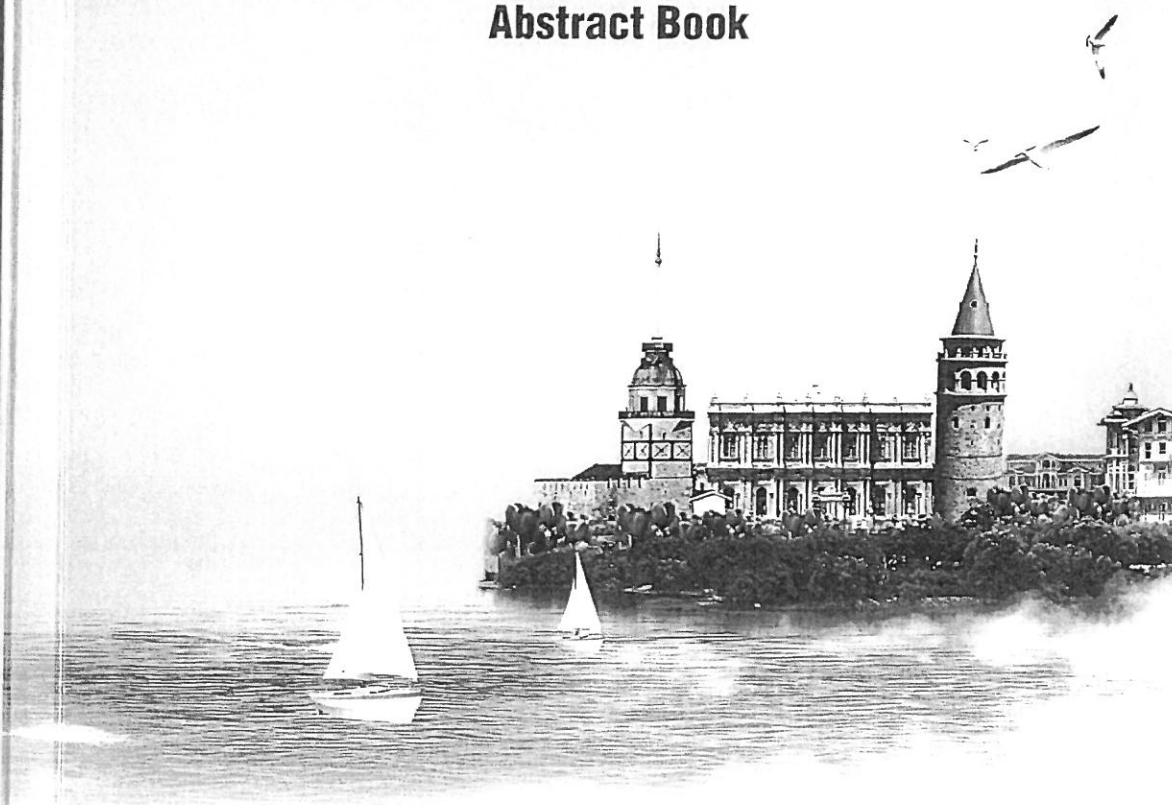


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### The effect of NaCl and low nutrient availability on initial adhesion of *Listeria monocytogenes* to solid surfaces under liquid flow

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Strains of the food borne pathogen *Listeria monocytogenes* have a tendency to persist in food processing environments. This is partly due to the widespread occurrence and the capability to survive or even grow in stressful conditions such as low temperature, fluctuating humidity, at elevated salt levels etc. The ability to adhere to solid surfaces under liquid flow has been found to differ between strains and surfaces. In the present work, the initial adhesion of four strains of *L. monocytogenes* was investigated after propagation in different media. The effect of low nutrient availability on the initial adhesion rate (IAR) was investigated under liquid flow at two levels of shear stress on three different surfaces using a flow chamber set-up and microscopy. Further, the effect of NaCl in the growth medium was tested in both the high and low nutrient medium. *L. monocytogenes* strain 412, which is isolated from bacon, showed minimal effect on IAR by addition of NaCl during propagation in high nutrient medium. At low nutrient availability, *L. monocytogenes* 412 had a significant higher IAR than in TSB. By addition of NaCl in the low nutrient medium, there was a decrease in IAR at high flow rate. This was however not seen at low flow. IAR of *L. monocytogenes* strain EGDe decreased by addition of NaCl at both high and low nutrient availability. Further, at low nutrient availability there was a significant increase in IAR at high flow. *L. monocytogenes* strain LO28 and N53-1 also showed a tendency of higher IAR at low nutrient availability as well as a decrease after addition of NaCl. The effect of addition of NaCl during propagation on IAR was most significant on *L. monocytogenes* strain N53-1. In general these results indicate that low nutrient availability during propagation increases IAR for several strains of *L. monocytogenes*. Further, the addition of NaCl during propagation has a tendency to decrease IAR of *L. monocytogenes*. Further studies are needed to elucidate the mechanisms behind these observations.

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### Reduction of shiga fermented sausages

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Dry-fermented sausages (DFS) hurdles – a combination of low drying are necessary to reduce *E. coli* (STEC) is a potential food severe illness. Its infectious dose range of foods. Regarding DFS where STEC have been the reported isolates of various serogroup during post-process measures in mainly STEC, included enterohemorrhagic STEC along with apathogenic *E. coli*. In 2009 were also included. The difference in the reduction between process ranging from 1.3 to 2.0 log units. Treatment of 43 °C for 24 h, gave a reduction of 1.3 to 2.0 log units. Of the other post-process measures subsequent storage for 1 month in general, no systematic difference was detected for the different post-process measures. Those of apathogenic control in ripening process did not have a significant effect. Like storage, heating and freezing, easily be implemented in DFS products.